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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,138	01/31/2005	Reinhold Hagel	4815/PCT	6104

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FASSE PATENT ATTORNEYS, P.A.
P.O. BOX 726
HAMPDEN, ME 04444-0726

EXAMINER

HOANG, JOHNNY H

ART UNIT PAPER NUMBER

3747

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/523,138	Applicant(s) HAGEL ET AL.	
	Examiner Johnny H. Hoang	Art Unit 3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 24-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 24-44 is/are rejected.
- 7) ☒ Claim(s) 35-44 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/31/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Inventorship

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because the abstract included the phraseology "means of". Correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informalities: The following headings of the specification are missing, such as:

- *Background of the Invention.*

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- **Brief Summary of the Invention.**

- **Brief description of the drawing(s).**

- **Detailed description of the drawing(s).** Correction is required. See MPEP § 608.01.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 2, are 24-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are replete with double recitations, terms that lack antecedent basis, and unclear language too numerous to mention in every instance. The following are several examples:

Claim 1, line 1, "*the operating mode*" lacks of antecedent basis.

Claim 5, line 4, "*the transformation*" lacks of antecedent basis.

Claim 2, line 3, "*the uneven running*" lacks of antecedent basis.

Claim 2, line 3, "*an IC engine*" is double recitation.

Claim 26, line 2, "*the calculated complex*" lacks of antecedent basis.

Claim 26, line 3, "*the reference phases*" lacks of antecedent basis.

Claims 27, and 31, line 2, "*the reference phases*" lacks of antecedent basis.

Claim 27, line 2, "*the measured phases*" lacks of antecedent basis.

Claim 27, line 4, "*the respective load*" lacks of antecedent basis.

Claim 27, line 5, "*the aid of...*" lacks of antecedent basis.

Claim 27, line 6, "*the cylinders*" lacks of antecedent basis.

Claim 28, line 2, "*an IC engine*" is double recitation.

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Claim 30, line 2, "*the aid of...*" lacks of antecedent basis.

Claim 30, line 4, "*the relevant orders*" lacks of antecedent basis.

Claim 31, line 2, "*the calibration factor*" lacks of antecedent basis.

Claim 31, line 5, "*the respective...*" lacks of antecedent basis.

Claim 31, line 6, "*the knowledge of the respective...*" lacks of antecedent basis.

Claim 33, line 2, "*the adaptation of...*" lacks of antecedent basis.

Claim 33, line 3, "*the injected fuel*" lacks of antecedent basis.

Claim 40, lines 7-9, "device for" and "unit for" are indefinite.

The claims not specifically mentioned are indefinite since they depended from one of the above claims.

7. Regarding claims 1, 2, and 24-44, the word "means" is preceded by the word(s) "effected by", "arithmetic", etc., including in claims 1, 2, and 24-44 in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claim Objections

8. Claims 35-44 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 35 does not further limit the method of claim 1. See MPEP 608.01(n). Claims 35, and 44 must be rewritten in independent form or amended to place the in proper dependent form that depended in claim 1. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

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The claims not specifically mentioned are objected since they depended from one of the above claims.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1, 2, and 24-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carey et al (6,021,758) in view of Jin (US 6,357,287) and further in view of Walter et al (US 5,479,818).

Carey et al discloses a device for sampling crankshaft signal (col. 3, lines 53-59), the detection of non-uniform cylinder torques as small-observed engine speed fluctuations about the average engine speed for any given operating point of the engine (col. 2, lines 35-64; and col. 3, lines 31-35). Carey et al does not disclose frequency analysis device, and the transformation is Hartley-transformation.

Jin discloses a method for detecting engine operation using frequency analysis (abstract), and Walter et al teach the transformation is Hartley-transformation.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the control device of Carey et al which includes a frequency analysis as taught by Jin, and further includes the Hartley-transformation operation of Walter et al for the purpose of improved performance for the frequency component's amplitude magnitude expands

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and frequency signal may easily be derived from the detector signals by using common evaluation techniques (Hartley-transformation).

Regarding claims 2, 25, Carey et al further disclose the detection of unbalanced engine (see abstract).

Regarding claims 24, 26, and 27, Carey et al disclose in col. 2, lines 35-64, and see the specification for more details.

Regarding claims 28-31, Jin discloses the method for detecting misfire by using frequency analysis (see specification for more details).

Regarding claims 32-34, as claims 1, 2, and 25.

Claims 35-44 are rejected the same reasons as claims 1, 2, and 24-34.

Conclusion


12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johnny H. Hoang whose telephone number is (571) 272-4843. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephens K. Cronin can be reached on (571) 272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JHH
July 24, 2006

Johnny H. Hoang
Examiner
Art Unit 3747


Andrew M. Dolinar
Primary Examiner